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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jeremy Wertheimer and Carl G.
DeMarcken

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Examiner : Robinson Boyce, Akiba K

Serial No. : 09/615,574

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Title : COMPETITIVE AVAILABILITY TOOLS

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(1) Real Party In Interest

The real party in interest in the above application is ITA Software, Inc.

(2) Related Appeals and Interferences

The appellant is not aware of any appeals or interferences related to the above-identified patent application.

(3) Status of Claims

This is an appeal from the decision of the Primary Examiner in an Office Action dated April 24, 2003, finally rejecting claims 1-20, all of the claims of the above application.

Claims 1 and 17 were rejected under 35 U.S.C. § 103 (a) as obvious over Gaspard, U.S. Patent 6,411,897. Claims 4-10 were rejected under 35 U.S.C. § 103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715. Claims 2, 3, 18 and 19 were rejected under 35 U.S.C. § 103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715 and further in view of Lynch U.S. Patent 5,839,114. Claims 4-10 were rejected under 35 U.S.C. § 103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715. Claims 11 and 20 were rejected under 35 U.S.C. § 103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715 and further in view of Lynch U.S. Patent 6,119,094.

Appellant filed a Notice of Appeal on **July 30, 2003**.

(4) Status of Amendments

Appellant filed a response to the outstanding office action of April 24, 2003 on July 30, 2003. All amendments have been entered and no claims were allowed.

(5) Summary of Invention

Background

The claimed invention relates to processes that determine airline seat availability information.

Airlines institute selling policies that can change to meet supply and demand considerations to maximize profit on any given flight. In order to issue a ticket for a single or multi-flight segment itinerary, each flight segment must be available to issue a ticket. This is commonly referred to in the industry as determining airline seat availability. Availability is governed by whether an airline has available seats on flight segments and whether characteristics of the passenger correspond to a situation where the airline can maximize profit. For instance, common characteristics include whether the passenger is willing to pay for the ticket or using a credit, whether the passenger is using other flights on that airline, whether the passenger is a frequent flyer and so forth.

Generally, before booking a flight and issuing a ticket, the seller sends a request for seat availability information to the airline. In general, a request for seat availability information is sent over a computer network to an airline and is processed in the airline's computer system. An answer to the request is provided from the system, typically in the form of a message that includes one or possibly a plurality of so-called booking codes that are labels used to designate different prices that an airline is willing to sell tickets at.

Appellant's Invention

Appellant's invention is directed at a competitive, availability prediction system for predicting relative, competitive availability of seating on a competitor's airline flight. The system includes an availability predictor that predicts seat availability information on a competitor's competing flight, and an availability system that produces an actual availability response for a flight for the user of the competitive availability system. The system includes decision logic that compares the predicted answer from the availability predictor and the potential answer that could be provided from the availability system to establish a decision with respect to actual availability that will be provided from the availability system. This permits a

user to adjust its answer based on whether a competitor is in a more or less favorable position for the competitor's flight.

References to the Specification

Appellant's FIG. 1 shows a competitive availability prediction system 10. The competitive availability prediction system includes a filter 12 that is used to filter queries received by the system 10. The filter 12 includes rules that allow the filter 12 to pass through those queries that correspond to flights supported by a user of the competitive availability system 10, as well as selected competitors of that user. The competitive availability system 10 produces a prediction of the availability of a seat on a competitor's flight or flights so as to determine how a competitor or competitors may respond to an availability request. The user of the competitive availability system 10 can decide whether and how to adjust its response from the availability system 74.

In the typical case, the user of the competitive availability system 10 is an airline that desires to modify its actual availability response to an availability query that it receives based on how it expects a competitor airline might respond to a similar query. The filtered queries provided from filter 12 are fed to one or more availability predictors generally denoted as 14. The availability predictors 14 are provided for each competitor, for which the user of the competitive availability system 10 desires to compare airline availability responses.

The filtered queries are fed to the actual or a simulated availability system 16 of the airline that owns or uses the competitive availability system 10. The availability predictor 14 and the availability system 16 each produces answers. The availability predictor produces a predicted answer for the competitor and the availability system produces a potential availability answer for the user of the competitive availability system 10. These answers are fed to decision logic 18. The decision logic 18 compares the answers to determine whether or not the actual answer that will be provided from the user's availability system 16 should be modified to take into consideration the relative competitive situation of the competitor represented by the availability predictor 14.

FIG. 2A shows a process 30 incorporating high-level decision logic 18' and modification logic 20 that is used in the system of FIG. 1. The process 30 receives 32 the predicted and

potential, actual responses from the availability predictor 14 and the availability system 16 respectively, and compares 34 the predicted and potential, actual responses to arrive at a decision whether to bias a modification towards making a seat more available or less available, or to remain neutral. The process 30 modifies 36 the potential, actual availability response based upon the comparison and returns 38 the potential, actual availability response or a modified actual availability response to the entity that issued the query in the first instance.

Referring now to FIG. 2B, an exemplary process flow 40 for decision logic 18 (FIG. 1) is shown. The process 40 examines the competitor's relative position to the user of the availability system 10. In particular, the process determines 42 whether the availability predictor 14 predicts that the competitor has available seats. If the prediction is that the competitor does not have available seats, then the decision logic could return 44 a message indicating "no bias" i.e., the modification logic would not change the potential answer issued by the availability system 16. If the competitor does have available seats, the decision logic 18 can determine 46 whether the competitor's available booking codes are at a lower price than those, which the availability system 14 indicates the user of the system 10 can offer. If the competitor's available booking codes are not at a lower price, then the system can test 48 whether the original query was for a "low cost fare." If the query was for a "low cost fare," the system can return 50 a bias towards making the seat "not available." Otherwise, the system can return 52 "no bias."

If the competitor's available booking codes are at a lower price than those being offered by the user of the system 10, the system can ask whether 54 the query was for a "high cost fare." If the query was for a "high cost fare," the decision logic 18 can return 56 a bias towards making the seat "available." If it was not for a high cost fare, the system can return a message of "no bias" 118.

Alternatively, the messages that are returned could change the availability message from the availability system 16, rather than merely biasing a change in the availability message. The modification logic 20 can change the actual availability answer from the availability system 16 using various analytical techniques. Many other considerations can enter into the decision logic 18 to determine whether or not an availability answer should be modified based upon a competitor's relative competitive position.

FIG. 3 shows a first embodiment 65a of an availability predictor 65 includes a database 70, a database engine 80 and a predictor process 90. The database 70 stores availability queries and answers, as shown. Several sources of availability information can be used. One type of source is actual availability answers. However, certain considerations can make these types unattractive or not available. Other sources therefore could include public sources of seat availability such as ticket information, passenger lists, etc. Also "AVS" messages could be used. AVS messages are sent out from certain airlines, particularly in foreign countries, to other airlines or computer reservation systems. AVS messages specify for a given flight segment whether there are seats remaining on that flight, sometimes on a per booking code basis. Not all airlines use the AVS message process and, therefore, its use in the database would be limited to the availability of such messages for any particular flight segment and airline.

Other aspects of availability predictors are described in FIGS. 4-10B

(6) Issues

The issues to be decided on appeal are:

1. Did the Examiner properly reject claims 1 and 17 under 35 U.S.C. § 103 (a) as obvious over Gaspard, U.S. Patent 6,411,897?
2. Did the Examiner properly reject claims 4-10 under 35 U.S.C. § 103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715?
3. Did the Examiner properly reject claims 2, 3, 18 and 19 under 35 U.S.C. §103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715 and further in view of Lynch U.S. Patent 5,839,114?
4. Did the Examiner properly reject claims 11 and 20 under 35 U.S.C. §103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715 and further in view of Lynch U.S. Patent 6,119,094?

(7) Grouping of Claims

Claims 1-20 do not stand or fall together. Appellant's claims will be argued in separate groupings as defined below.

Group I has claims 1, 4, 5, 16 and 17;

Group II has claims 2 and 18;
Group III has claims 3 and 19;
Group IV has claims 6-9;
Group V is claim 10;
Group VI has claims 11-15 and 20.

(8) Argument

1. The Examiner has failed to establish a case of prima facie obviousness under U.S.C. 103(a) of claims 1 and 17 as being obvious over Gaspard, U.S. Patent 6,411,897.
2. The Examiner also failed to establish a case of prima facie obviousness under 35 U.S.C. 103(a) of claims 4-10 as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715.
3. The Examiner also failed to establish a case of prima facie obviousness under 35 U.S.C. 103(a) of claims 2, 3, 18 and 19 under 35 U.S.C. §103 (a) as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715 and further in view of Lynch U.S. Patent 5,839,114.
4. The Examiner also failed to establish a case of prima facie obviousness under 35 U.S.C. §103 (a) of claims 11 and 20 as being obvious over Gaspard, U.S. Patent 6,411,897 in view of Lynch U.S. Patent 6,018,715 and further in view of Lynch U.S. Patent 6,119,094.

Obviousness

"It is well established that the burden is on the PTO to establish a prima facie showing of obviousness, *In re Fritsch*, 972 F.2d. 1260, 23 U.S.P.Q.2d 1780 (C.C.P.A., 1972)."

"It is well established that there must be some logical reason apparent from the evidence or record to justify combination or modification of references. *In re Regal*, 526 F.2d 1399 188, U.S.P.Q.2d 136 (C.C.P.A. 1975). In addition, even if all of the elements of claims are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill in the art would have been prompted to combine the teachings of the references to arrive at the claimed invention. *Id.* Even if the cited references show the various elements suggested by the Examiner in order to

support a conclusion that it would have been obvious to combine the cited references, the references must either expressly or impliedly suggest the claimed combination or the Examiner must present a convincing line of reasoning as to why one skilled in the art would have found the claimed invention obvious in light of the teachings of the references. *Ex Parte Clapp*, 227 U.S.P.Q.2d 972, 973 (Board. Pat. App. & Inf. 1985)."

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, "[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Laskowski*, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989).

"The claimed invention must be considered as a whole, and the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984).

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (emphasis in original, footnotes omitted).

"The critical inquiry is whether 'there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *Fromson v. Advance Offset Plate, Inc.*, 225 U.S.P.Q. 26, 31 (Fed. Cir. 1985).

Discussion

Prior Art Rejections

Group I (claims 1, 4, 5, 16 and 17)

Claim 1 is representative of this group of claims. Claim 1 is directed to a competitive, availability prediction system for predicting relative, competitive availability of seating on an airline flight. Claim 1 requires an availability predictor that predicts seating availability on a competitive flight. Claim 1 also requires an availability system that produces an actual availability response for a flight. Claim 1 includes decision logic that compares the predicted answer from the availability predictor and the potential answer from the availability system to establish a decision with respect to actual availability.

The subject of Claim 1 is an airline seat availability prediction system that can establish a decision as to whether it should adjust a seat available answer based in part on how a competitor would respond to a similar availability query for seat availability information on the competitor's airline flight. The method of claim 1 can be used to predict what a competitor's availability answer for an airline seat would be in response to a query for seat availability on that competitor's flight. Neither Gaspard nor the other references address this subject matter. Gaspard is directed to a real-time scheduling system not to predicting answers to airline seat availability queries.

The examiner contends that: "Gaspard predicts arrival and departure times." (*Page 2 of the final rejection*). The examiner takes the position that "arrival and departure time are analogous to seat availability" (page 2 of the final rejection). Algorithms to determine arrival and departure times to generate a route schedule have nothing to do with a system that predicts whether an airline would make a seat available on a flight.

Gaspard's use of the phrase "seat availability" at Col. 11 lines 7-27 is not relevant to claim 1. Gaspard does not predict seat availability, since it is a physical fact of the system taught by Gaspard given received transportation requests. That is, when the system as taught by Gaspard receives a request for transportation, either the seat is available or it is not available. Moreover, "seat availability" as used in Gaspard is for the seat availability of the user's own transportation units not that of a competitor's. Accordingly, Gaspard does not determine seat

availability for the purpose of comparing a predicted answer from an availability predictor, which models or predicts a competitor's availability system, and a potential answer from an availability system.

Moreover, Gaspard is devoid of teachings that suggest decision logic that compares the predicted answer from the availability predictor (which is predicting what the competitor will answer) and a potential answer from the availability system to establish a decision with respect to actual availability from the availability system.

The examiner contends that Gaspard's (at col. 10 lines 60-63) teachings of predicting arrival/departure times, suggests the decision logic element of claim 1. However, Gaspard merely compares a predicted time to actual time for ascertaining the reliability of the predicted times. The decision logic element of claim 1 compares a predicted answer from an availability predictor that predicts competitive availability to a potential answer from the availability system to establish a decision with respect to actual availability of a seat for booking on an airline. Gaspard does not compare to establish a decision with respect to actual availability. Claim 1 is thus distinct over Gaspard.

Group II (claims 2 and 18)

Claim 2 is representative of this group of claims. The examiner rejected claim 2 using a combination of Gaspard, U.S. Patent 6,411,897, Lynch U.S. Patent 6,018,715 and Lynch U.S. Patent 5,839,114. The examiner admitted however that Gaspard, U.S. Patent 6,411,897 and Lynch U.S. Patent 6,018,715 failed to disclose the complete element of claim 2. Claim 2 depends directly from claim 1, which was rejected solely in view of Gaspard, U.S. Patent 6,411,897. Accordingly, the use of Lynch U.S. Patent 6,018,715 in the rejection is improper.

Claim 2 further limits the decision logic of claim 1 by requiring that decision of the decision logic is a bias that determines whether the potential answer should be modified based upon the relative competitive position of the competitor represented by the availability predictor.

Gaspard does not examine a competitive position of a competitor. Lynch '114 does not suggest decision logic that produces a decision in the form of a bias that can be used to modify a potential availability answer based upon the relative competitive position of the competitor represented by the availability predictor. The teachings identified by the Examiner (col. 7 line

66 to col. 8 line 27) of Lynch '114 relate to travel preferences not to "seat availability." Moreover, those teachings are not directed to a bias that determines whether a potential availability answer should be modified based upon the relative competitive position of the competitor represented by the availability predictor. Therefore, claim 2 is distinct over the references.

Group III (claims 3 and 19)

Claim 3 is representative of this group of claims. The examiner rejected claim 3 using a combination of Gaspard, U.S. Patent 6,411,897, Lynch U.S. Patent 6,018,715 and Lynch U.S. Patent 5,839,114. As with claim 2, the examiner admitted that Gaspard, U.S. Patent 6,411,897 and Lynch U.S. Patent 6,018,715 failed to disclose the complete element of claim 3. Claim 3 also depends directly from claim 1, which was rejected solely in view of Gaspard, U.S. Patent 6,411,897. Accordingly, the use of Lynch U.S. Patent 6,018,715 in the rejection is again improper.

Claim 3 further limits claim 1 by including modifying logic that is responsive to the availability response from the availability system and from the bias from the decision logic to modify the actual availability answer in accordance with the bias. Lynch '114 teaches travel preferences not seat availability and fails to teach bias from the decision logic to modify the actual availability answer in accordance with the bias. Therefore, claim 3 is distinct over the references.

Group IV (claims 6-9)

Claim 6 is representative of this group of claims and recites that the decision from the decision logic can have a plurality of states. The references do not suggest the decision logic and therefore do not suggest that a decision from the decision logic can have a plurality of states. The examiner relies on Col. 6 lines 10-25 Lynch '715 to find support. However, Lynch '715 discusses a technique to ascertain "fair policies" among a traveler, airline and business entity. Lynch uses weighted values to determine a recommended travel plan. Lynch '715 does not teach returning a decision from the decision logic, where the decision has plural states with respect to actual seat availability information.

Group V (claim 10)

Claim 10 is representative of this group of claims. Claim 10 recites that the state depends upon the relative competitive position of the competitor represented by the availability predictor. The references do not suggest a competitive scenario. Lynch 715 discusses a competitive set of travel preferences by does not suggest a decision where the state depends upon the relative competitive position of the competitor represented by the availability predictor. The examiner considers that Col. 6 lines 7-14 and the Abstract as suggesting this feature. However, Lynch at those passages is discussing a technique to determine a traveler's travel plan using fuzzy logic. These teachings do not suggest that the state depends upon the relative competitive position of the competitor represented by the availability predictor, because the state of the decision establishes actual seat availability information for a seat on an airline.

Group VI (claims 11-15 and 20)

Claim 11 is representative of this group of claims and recites that the decision logic determines whether the competitor's available booking codes are at a lower price than those, which the availability system indicates the user of the system can offer. The examiner concedes that Gaspard and Lynch '715 fail to disclose this element and relies on Lynch '094 (Col. 3 lines 59-63). However, in that passage Lynch '715 discusses genetic algorithms to find low cost travel arrangements. Again, claim 11, which depends from claim 3, is not directed to the aspect of a low fare search. Rather, claim 3 recites modifying logic that is responsive to the potential availability response ... and the bias from the decision logic to modify the actual availability answer. Claim 11 adds the feature that the decision logic determines whether the competitor's available booking codes are at a lower price than those, which the availability system indicates the user of the system can offer, to affect the manner in which the modifying logic will modify the actual answer that is sent to the entity that requested the seat availability information. Discussion in Lynch '715 of genetic algorithms to find low cost travel arrangements have no relevance to at least these elements of claim 11.

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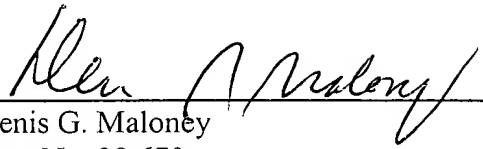
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Conclusion

Appellant submits, therefore, that Claims 1-20 are allowable over the cited art. Therefore the Examiner erred in rejecting Appellant's claims and should be reversed.

Respectfully submitted,

Date: 12/1/03



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